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Assessment Models -- Chapter 9. Airborne Emissions and Territorial Vulnerability Assessment -- Chapter 10. System Resilience Governance -- Chapter 11. Dynamic Capability Model -- Chapter 12. Processing Switzerland -- Chapter 13. Vulnerability Analysis and Swiss Reduction - Building a Framework for Ranking Solutions -- Chapter 14. The Case for Sihl Dam -- Chapter 15. Urban Area Vulnerability Assessment: Cellular Automation Approach to Airflow Dispersion in Complex Terrains -- Chapter 16. Vulnerability of a Regional Economy in a Global Competition -- Chapter 17. The Postface - Towards Space, Belowground and Undersea Governance -- Appendices.

Sommario/riassunto

In the face of increasing failures, comments attributed to Albert Einstein loom large: “We cannot solve our problems with the same thinking we used when we created them.” There is a pervasive feeling that any attempt to make sense of the current terrain of complex systems must involve thinking outside the box and originating unconventional approaches that integrate organizational, managerial, social, political, cultural, and human aspects and their interactions. This textbook offers research-based models and tools for diagnosing and predicting the behavior of complex techno-socio-economic systems in the domain of critical infrastructures, key resources, key assets and the open bazaar of space, undersea, and below-ground systems. These models exemplify emblematic models in physics, within which the critical infrastructures, as well as society itself and its paraphernalia, share the profile of many-body systems featuring cooperative phenomena and phase transitions – the latter usually felt as disruptive occurrences. The book and its models focus on the analytics of real-life-business actors, including policy-makers, financiers and insurers, industry managers, and emergency responders.